Digital Data Submission Standards

The City of Indianapolis/Marion County (hereinafter referred to as City/County) has adopted geographic information system (GIS) technologies to store, manage and maintain geographic/spatially-related data. Likewise, the majority of the civil engineering community has evolved to the point where the predominating design environment is computer aided design and drafting (CAD). It is the goal of the City/County to use these technologies, GIS and CAD, to expedite the design and review processes within the administration, by developing standards and procedures for integration of digital engineering CAD drawings into the GIS environment maintaining the integrity and positional accuracy of the data.

Highlighted below are the requirements for submission of digital as-built CAD data as required for City/County construction projects.

- **A Plan View of the affected construction area shall be submitted in one encompassing drawing file.**
  It is understood that engineering design is completed in a drawing (digital file) that includes several plan and profile drawing sheets. When the digital file is submitted to the City/County in the same format as used for the design, it can not logically be imported into the GIS unless the standards for the coordinate system and layer naming convention are used. Therefore, all information for new or altered GIS structures in the work area and all accompanying geodetic control (*Geodetic Control is discussed later in this document.) shall* be copied into a file showing one plan view for the construction area.

- **File format shall be the Drawing Interchange File (DXF) format**.
  DXF files can be created from all major CAD and GIS packages. Standard transfer media will be accepted. This includes floppy disk, CD-ROM, and IOMEGA Zip disks. ***The media shall be properly labeled with the title of the drawing(i.e. drawing name), the type of drawing(i.e. As-built, Preliminary, etc.), a project number if applicable, a City Project Manager or contact name, the unit of measure(feet or meters), and a submittal/creation date of the media.***

- **The drawing shall be submitted in State Plane coordinates with two points of geodetic control for spatial reference**.
  Features in drawing files that are stored in drawing units will be translated to real world locations. The geodetic control chosen must correspond to existing features in the City/County GIS. The new structures and features must be geographically registered to the geodetic control. Acceptable control includes section corners and quarter section corners. State Plane coordinates exist for most quarter section corners in Marion County. Control assistance can be obtained from the Marion County Surveyor's Office. It is a requirement that the control used be referenced and shown in the plan drawing. If the point of control is located *within* the project limits it should be symbolically indicated and annotated in the design file. If the nearest control is located well *outside* of the project area then it should be tied to one of the other geodetic control points used, and a reference tie annotated and indicated in the design file. Street "network lines" are present in the GIS data but this information should not be assumed to be the legal platted street centerline. Any land survey information, such as basis of bearings and or any assumptions must be submitted and annotated on the design file. This information is necessary for any post processing required by the GIS.

- **Required graphic specifications include layer names and color number definitions**.
  Graphic file specifications are shown in Appendix A. All features included in the submitted GIS view will follow these specifications in the following manner:

  – The features shall be submitted on the specified layer. Systems using numbered levels, such as MicroStation include a conversion table in the dxf file creation process that can be used to specify named layers.
  – Features added that do not have a layer specified in Appendix A shall be placed on a separate, unique layer and identified in the accompanying schema.
  – The color number of the features that have been changed or added shall be different than the color of the original features on that layer.
  – All line features added shall be input so that each segment shall represent each individual line/pipe feature(i.e. each segment is broken at the ends where a node/structure is located).
  – The line feature(s) added shall be input using the same direction from point to point as the proposed or existing flow of the specified layer (i.e. sanitary or storm layers). Therefore the starting point of all line segments within these layers should be the upstream point and the downstream point shall be the endpoint of that segment. This is needed to show the continuity of flow and connectivity within the sanitary and storm layers.
  – Miscellaneous lines and text should be placed on unique layers different from ones used by the GIS.

  Example: Added sanitary manholes shall be submitted on the layer named SANSTR. Existing GIS manholes are also on that layer in color 21. The new manholes shall be color 31 (any color but 21). It does not matter if an entity on another layer is also color 21 or 31 because entities are translated with layer first, then color. It is also not important that both 21 and 31 may be RED, only the number is used.

- **Two files shall be provided to the City/County; A GIS plan view following these outlined specifications, and the complete original CAD drawing file in dwg or dxf format.** If the graphic specifications for the CAD file has additional layers to those listed in Appendix A, then the list of specifications for the drawing file shall also be submitted. The complete CAD drawing file should contain text in standard fonts that can be read without third party software.

- **The City/County shall provide a dxf file of the existing IMAGIS features in the design area, for City/County projects, at the start of the design process.** For private projects, IMAGIS data is available for purchase through the IMAGIS office (Phone 327 – 2155 for order information, Admin. phone 327 -2154). The information in the file shall be displayed in either US feet or metric units (State Plane Coordinates, Indiana East Zone, NAD83) as specified by the contractor/engineer. The data shall be extracted from existing City/County GIS data and provided to a contractor in DXF format. The intent is to provide base data for the engineer's use as appropriate. It is recognized that the extent to which this data is usable shall depend on the project being undertaken and that such data is appropriate only for preliminary engineering and corridor layout studies. It may also be appropriate for engineering associated with the layout and design of a preliminary subdivision plat, particularly since a new subdivision must not only close but must correctly juxtapose with existing adjacent subdivisions and/or parcels. Use of the GIS data is at the engineer's discretion. In addition, the GIS schema (layer and color definitions) shall be provided in a text file format shown in Appendix A

- **An empty attribute database file (dbf) shall be provided to the contractor**. **These files are available free of charge through the IMAGIS office.**
  The database file shall be formatted for the entry of the descriptive data for each added feature. The required information will be similar to the information now required in the "Structures Table".

- **Attribute information shall be submitted in a database file (dbf) format.**
  Many of the City/County features, including sanitary sewers and appurtenances, have a significant number of descriptive attributes stored in databases. These attributes are derived from the plans submitted to the City/County. Each record in the file shall be assigned a unique UNITID or "tag", which will correspond to text labels in the CAD file showing the referenced feature. For City contracted jobs, the City shall provide a group of unique numbers for use with new structures. Private developers will have the options of obtaining a group of unique numbers or using sequential integers. The numbers must be unique within the entire design file. The unique numbers for each feature shall be listed down the first column, with the corresponding attributes for each feature provided in the corresponding rows. This will allow the City GIS personnel to sort and import these data into the GIS and assign them to the appropriate features imported from the DXF design file. All attributes are required for new or moved features. A new "UNITID" value will be used for new or when relocating existing features. Removed or abandoned features need the field "Servstat" populated with an "O" for out of service. Only the attributes denoting the change in feature are required for altered existing features. Requested attributes for selected features are shown in Appendix A.

  The text label shall be included in the dxf file in a standard font. The lower left corner of the label shall be touching the point or linear graphic feature to which it corresponds. The text will be placed on the same layer as the GIS feature.

- **Contractor shall acknowledge the IMAGIS copyright** by stating "Source data provided by IMAGIS", "Design by ____".

Subsequent to the incorporation of digital plans into the design and review process the City/County anticipates a more efficient process, involving a shorter time period between the initial submittal of a project and final approval.

Appendix A
Graphic file Specifications

LAYER DESCRIPTION	ORIGINAL COLOR NUMBER	LAYER NAME	FEATURE TYPE
Building Outlines	1	BUILDING	POLYGON
Citizens Gas Utility Easements	2	CGCUESMT	LINESTRING
Citizens Gas Main Gas Lines	3	CGCUMAIN	LINESTRING
Centerlines	4	CNTRLIN	LINESTRING
GPS ground control	5	CONTROL	POINT
Curbs	35	CURB	LINESTRING
Ditches	6	DITCHES	LINESTRING
DPW Easements	7	DPWESMT	LINESTRING
Utility Easement	8	EASEMENT	LINESTRING
Fences	9	FENCES	LINESTRING
Parcels and ROW (See attached list for linear specifications required for new subdivisions)	10	PARCELS	POLYGON
Indianapolis Water Co. Hydrants	11	IWCHYD	POINT
Indianapolis Water Co. Mains	12	IWCMAIN	LINESTRING
Lift Stations	13	LIFTSTAT	POINT
Misc. manholes (Other than Sanitary Sewer and Storm)	14	MISCMH	POINT
Parking	15	PARKING	LINESTRING
Pavement Edges	16	PAVEMENT	LINESTRING
Poles	17	MISCPOLES	POINT
Railroads	18	RAILROAD	LINESTRING
Rights of Way	19	RGTOFWAY	LINESTRING
Rivers	20	RIVERS	LINESTRING
Sanitary Manholes (Include Sanitary Nodes)	21	SANSTR	POINT
Sanitary Sewer Mains	22	SANSEWER	LINESTRING
Section Corners	29	SECCOR	POINT
Sidewalk	28	SIDEWALK	LINESTRING
Sidewalk Ramps	36	ADARAMPS	POINT
Storm Drainage Lines & Channels	23	STORMLIN	LINESTRING
Storm Structures (Include Storm Manholes and Nodes)	24	STORMSTR	POINT
Streams	25	STREAMS	LINESTRING
Unpaved Roads	26	UNPAVED	LINESTRING
Signal Controller Cabinets	30	SIGCOCAB	POINT
Traffic Signal Heads	31	SIGHEAD	POINT
Signal Mast Arms/Span Guys	32	SIGSPAN	POINT
Signal Access Holes	33	SIGHOLE	POINT
Traffic Signal Poles	34	SIGPOLE	POINT
Walls	27	WALLS	LINESTRING

Other added infrastructure including signal related facilities such as loops, conduit, and the detector housing shall not be incorporated into GIS at this time, but should still be placed on individual unique layers for future use.

Subdivision Linear and Text Specifications

Layer Description	Original Color Number	Layer Name	Feature Type
Parcels and ROW Centroids	7	PARCELS	POINT
Lines delineating Subdivision and parcels	1	PS	LINESTRING
Lines delineating Subdivision only	2	S	LINESTRING
Lines delineating Subdivision, ROW and Parcels	3	PRS	LINESTRING
Lines delineating Subdivision and ROW	4	RS	LINESTRING
Lines delineating both ROW and Parcel	5	PR	LINESTRING
Lines delineating ROW only	6	R	LINESTRING
Lines delineating Parcel only	7	P	LINESTRING
Subdivision Name Text	19	SUB_NAM	TEXT
Landhooks	8	LHOOK	LINESTRING
Address NumberText	21	ADD_TXT	TEXT
Lot Numbers	19	LOT_NO	TEXT
Block Numbers	14	BLOCK_NO	TEXT
Lot dimension Text	13	LOT_DIM	TEXT
Miscellaneous Lines	9	MISC	LINESTRING
Miscellaneous Text	9	MISC	TEXT

Required Attributes For Structures Tables

A database file shall be provided in a dbf format for each of the following facilities. Columns in the database file shall be labeled with the following Column Names and shall be formatted to accept data in the listed sizes. Descriptions of each column are provided here.

Storm Sewer Lines (Mains and Channels)

Storm Mains - Graphical Layer Name "Stormlin"
Compstmn.dbf

Field Name	Required	Field Type	Description
MAINCOMP1	YES	CHAR (4)	Type of structure at upstream end of main from **comptype.dbf** lookup table
UNITID	YES	CHAR (16)	ID of upstream structure
MAINCOMP2	YES	CHAR (4)	Type of structure at downstream end of main from **comptype.dbf** lookup table
UNITID2	YES	CHAR (16)	ID of downstream structure
PARLINENO		CHAR (1)	Distinguish between parallel pipes with the same upstream and downstream structures
STNO		*CHAR (6)*	*Upstream structure address street number*
PREDIR		*CHAR (3)*	*E,N,S,W if included in address*
STNAME		*CHAR (20)*	*Upstream structure address street name*
CITY		*CHAR (20)*	*Upstream structure address city*
STATE		*CHAR (2)*	*Upstream structure address state*
ZIP		*CHAR (10)*	*Upstream structure address zipcode*
ADDRQUAL		*CHAR (254)*	*Additional location information*
AREA	*YES*	*CHAR (10)*	*First two characters of the upstream structure id*
SUBAREA		*CHAR (3)*	*First three characters of Township in which the main is located*
LOC		*CHAR (4)*	*Main location from lookup table **tbl030.dbf***
MAPNO		*CHAR (14)*	*DPW 2 foot contour reference map number*
MAINTYPE		CHAR (6)	Type of main from lookup table **tbl123.dbf**
PIPESHP		CHAR (4)	Shape of main from lookup table **tbl048.dbf**
PIPEDIAM	YES	NUMBER (6,2)	Diameter of pipe in decimal Inches
PIPEHT	YES	NUMBER (6,2)	Height of non-round pipe in Decimal inches
PIPELEN	YES	NUMBER (7,2)	Length of pipe in decimal feet
PIPETYPE	YES	CHAR (6)	Pipe material from lookup table **tbl049.dbf**
JTTYPE		*CHAR (6)*	*Type of join from lookup table **tbl042.dbf***
JTLEN		*NUMBER (6,2)*	*Length of pipe sections used*
DSGNFLOW		*NUMBER (8,2)*	*Design flow of pipe*
FFACTOR		*NUMBER (7,3)*	*Design friction factor of pipes*
SLP		*NUMBER (7,5)*	*Slope of pipe in percent*
UPSDPTH	YES	NUMBER (6,2)	Depth of upstream structure in decimal feet
DWNDPTH	YES	NUMBER (6,2)	Depth of downstream structure in decimal feet
UPSELEV	YES	NUMBER (7,2)	Invert elevation of upstream structure in decimal feet
DWNELEV	YES	NUMBER (7,2)	Invert elevation of downstream structure in decimal feet
INSTDATE	YES	DATE	Installation date
ASBLT		CHAR (10)	As-built number
SURF		*CHAR (4)*	*Predominant surface material over pipe from lookup table **tbl068.dbf***

CRIT		*CHAR (4)*	*Criticality rating of the main*
PCPIRNO		CHAR (10)	Project number of PC/PIR project if applicable
SPECINST		CHAR (254)	Other comments about the main
SERVSTAT		CHAR (1)	Use I for in service and O for out of service

Storm Channels – Graphical Layer Name "Stormlin"
Compstch.dbf

Field Name	Required	Field Type	Description
MAINCOMP1	YES	CHAR (4)	Type of structure at upstream end of channel from lookup table **comptype.dbf**
UNITID	YES	CHAR (16)	ID of upstream structure
MAINCOMP2	YES	CHAR (4)	Type of structure at downstream end of channel from lookup table **comptype.dbf**
UNITID2	YES	CHAR (16)	ID of downstream structure
STNO		*CHAR (6)*	*Upstream structure address street number*
PREDIR		*CHAR (3)*	*E,N,S,W if included in address*
STNAME		*CHAR (20)*	*Upstream structure address street name*
CITY		*CHAR (20)*	*Upstream structure address city*
STATE		*CHAR (2)*	*Upstream structure address state*
ZIP		*CHAR (10)*	*Upstream structure address zipcode*
ADDRQUAL		*CHAR (254)*	*Additional location information*
AREA	*YES*	*CHAR (10)*	*First two characters of the upstream structure id*
SUBAREA		*CHAR (3)*	*First three characters of Township in which the main is located*
LOC		*CHAR (4)*	*Main location from lookup table **tbl030.dbf***
MAPNO		*CHAR (14)*	*DPW 2 foot contour reference map number*
CHNLTYPE		*CHAR (6)*	*Type of channel from lookup table **tbl033.dbf***
SHAPE		*CHAR (6)*	*Shape of channel from lookup table **tbl142.dbf***
CONMATL		*CHAR (6)*	*Construction material of channel from lookup table **tbl037.dbf***
BASEWID		*NUMBER (6,2)*	*Base width of channel in decimal feet*
CHNWID		*NUMBER (6,2)*	*Channel width in decimal feet*
EASEWID		*NUMBER (6,2)*	*Easement width in decimal feet*
LFBNKMATL		*CHAR (6)*	*Left bank material from lookup table **tbl037.dbf***
RTBNKMATL		*CHAR (6)*	*Right bank material from lookup table **tbl037.dbf***
LFBNKHT		*NUMBER (6,2)*	*Left bank height in decimal feet*
RTBNKHT		*NUMBER (6,2)*	*Right bank height in decimal feet*
LFBNSL		*NUMBER (7,5)*	*Left bank slope in percent*
RTBNSL		*NUMBER (7,5)*	*Right bank slope in percent*
LENGTH		*NUMBER (8,2)*	*Channel length in decimal feet*
SLP		*NUMBER (7,5)*	*Channel slope in percent*
UPSDEPTH		*NUMBER (6,2)*	*Upstream structure depth in decimal feet*
DWNDEPTH		*NUMBER (6,2)*	*Downstream structure depth in decimal feet*
DSGFLOW		*NUMBER (8,2)*	*Design flow of channel in GPM or MGD*
DSGCAP		*NUMBER (8,2)*	*Design capacity of channel*
INSTDATE	YES	DATE	Installation date
ASBLT		CHAR (10)	As-built number

VEGE		*CHAR (6)*	*Vegetation type from lookup table **tbl144.dbf***
SPECINST		CHAR (254)	Other comments about the channel
SERVSTAT		CHAR (1)	Use I for in service and O for out of service

Storm Structures

All structures in the storm drainage system are stored in the STORMSTR GIS layer. They each have different data in IMS dependant on structure type. Each feature in the STORMSTR layer should have a record in one of the following tables.

Storm Manholes – Graphical Layer Name "Stormstr"

Compstmh.dbf

Field Name	Required	Field Type	Description
MHID	YES	CHAR (16)	ID of the manhole
STNO		*CHAR (6)*	*Manhole address street number*
PREDIR		*CHAR (3)*	*E,N,S,W if included in address*
STNAME		*CHAR (20)*	*Manhole address street name*
CITY		*CHAR (20)*	*Manhole address city*
STATE		*CHAR (2)*	*Manhole address state*
ZIP		*CHAR (10)*	*Manhole address zipcode*
ADDRQUAL		*CHAR (254)*	*Additional location information*
AREA	*YES*	*CHAR (10)*	*First two characters of the Manhole id*
SUBAREA		*CHAR (3)*	*First three characters of Township in which the manhole is located*
LOC		*CHAR (4)*	*manhole location from provided codes*
MAPNO		*CHAR (14)*	*DPW 2 foot contour reference map number*
MHTYPE	YES	CHAR (6)	Type of manhole from lookup table **tbl040.dbf**
MHDPTH		NUMBER (7,2)	Depth of manhole in decimal feet
SURF		CHAR (4)	Surface cover material around manhole from lookup table **tbl068.dbf**
CVRDIAM	YES	NUMBER (6,2)	Cover diameter of manhole in decimal inches
CVRTYPE	YES	CHAR (4)	Manhole cover type from lookup table **tbl034.dbf**
BARLDIAM	YES	NUMBER (6,2)	Barrel diameter in decimal inches
FRAMETYPE	YES	CHAR (4)	Manhole casting material from lookup table **tbl035.dbf**
RINGSTYPE	YES	CHAR (4)	Riser ring material from lookup table **tbl038.dbf**
CONETYPE	YES	CHAR (4)	Cone material from lookup table **tbl038.dbf**
WALLTYPE	YES	CHAR (4)	Wall material from lookup table **tbl038.dbf**
BENCHTYPE	YES	CHAR (4)	Bench type from lookup table **tbl038.dbf**
CHNLTYPE	YES	CHAR (4)	Channel type from lookup table **tbl038.dbf**
BASETYPE	YES	CHAR (4)	Base material from lookup table **tbl038.dbf**
STEPSTYPE	YES	CHAR (4)	Type of steps from lookup table **tbl038.dbf**
HYDIST		NUMBER (6,2)	Distance to nearest hydrant in decimal feet
METERED	YES	CHAR (1)	Y or N
DROPMH	YES	CHAR (1)	Y or N
INSTDATE		DATE	Installation date
ASBLT		CHAR (10)	As-built number

PCPIRNO		CHAR (10)	Project number of PC/PIR project if applicable
SPECINST		CHAR (254)	Other comments about the manhole
SERVSTAT		CHAR (1)	Use I for in service and O for out of service

Storm Lift Stations – Graphical Layer Name "Liftstat"

Compstls.dbf

Field Name	Required	Field Type	Description
LSID	YES	CHAR (16)	Lift station ID
LSNAME	YES	CHAR (30)	Lift station name
STNO		*CHAR (6)*	Lift station *address street number*
PREDIR		*CHAR (3)*	*E,N,S,W if included in address*
STNAME		*CHAR (20)*	Lift station *address street name*
CITY		*CHAR (20)*	Lift station *address city*
STATE		*CHAR (2)*	Lift station *address state*
ZIP		*CHAR (10)*	Lift station *address zipcode*
ADDRQUAL		*CHAR (254)*	*Additional location information*
AREA	YES	*CHAR (10)*	*Work area for lift station*
SUBAREA		*CHAR (3)*	*First three characters of Township in which the lift station is located*
LOC		*CHAR (4)*	Lift station *location from lookup table tbl030.dbf*
MAPNO		*CHAR (14)*	*DPW 2 foot contour reference map number*
LSTYPE		*CHAR (6)*	*Lift Station type*
SERNO		*CHAR (20)*	*Serial number of lift station*
MODELNO		CHAR (20)	Model number of lift station
WETWLVOL		*NUMBER (7,2)*	*Wet well volume in gallons*
WETWLELEV		NUMBER (7,2)	Wet well bottom elevation in decimal feet
OVFLELEV		NUMBER (7,2)	Wet well overflow elevation in decimal feet
NOPUMPS		NUMBER (5)	Number of pumps in the lift station
PUMPCAP		NUMBER (9,1)	Pump capacity of station in GPM or MGD
PUDISSIZE		*NUMBER (7,2)*	*Size of the forcemain in decimal inches*
INSTDATE		DATE	Installation date
ASBLT		CHAR (10)	As-built number
PCPIRNO		CHAR (10)	Project number of PC/PIR project if applicable
TDH		*NUMBER (9)*	*TDH of pumps in feet*
SPECINST		CHAR (254)	Other comments about the lift station
SERVSTAT		CHAR (1)	Use I for in service and O for out of service

Storm Inlet – Graphical Layer Name "Stormstr"

Compstin.dbf

Field Name	Required	Field Type	Description
INLETID	YES	CHAR (16)	ID of the inlet
STNO		*CHAR (6)*	Inlet *address street number*

PREDIR		*CHAR (3)*	*E,N,S,W if included in address*
STNAME		*CHAR (20)*	Inlet *address street name*
CITY		*CHAR (20)*	Inlet station *address city*
STATE		*CHAR (2)*	Inlet *address state*
ZIP		*CHAR (10)*	Inlet *address zipcode*
ADDRQUAL		*CHAR (254)*	*Additional location information*
AREA	*YES*	*CHAR (10)*	*Work area for* Inlet
SUBAREA		*CHAR (3)*	*First three characters of Township in which the* Inlet *is located*
LOC		*CHAR (4)*	Inlet *location from lookup table tbl030.dbf*
MAPNO		*CHAR (14)*	*DPW 2 foot contour reference map number*
INLETTYPE	YES	CHAR (6)	Inlet type from lookup table **tbl023.dbf**
MATL	YES	CHAR (6)	Inlet material from lookup table **tbl037.dbf**
GRATETYPE	YES	CHAR (6)	Grate type from lookup table **tbl080.dbf**
INLLEN	YES	NUMBER (6,2)	Inlet length in decimal inches
INLWID	YES	NUMBER (6,2)	Inlet width in decimal inches
INLDPTH	YES	NUMBER (6,2)	Inlet depth in decimal feet
OUTLDPTH	YES	NUMBER (6,2)	Outlet depth in decimal feet
INSTDATE	YES	DATE	Installation date
ASBLT		CHAR (10)	As-built number
MAINCONN		*CHAR (4)*	*Type of main into which inlet eventually discharges from lookup table comptype.dbf*
DWNTYPE1		*CHAR (4)*	*Type of structure at upstream end of main from lookup table comptype.dbf*
DWNID1		*CHAR (16)*	*ID of upstream structure of main*
DWNTYPE2		*CHAR (4)*	*Type of structure at downstream from lookup table comptype.dbf*
DWNID2		*CHAR (16)*	*ID of downstream structure of main*
DWNSTINLID		*CHAR (16)*	*ID of inlet into which inlet immediatelly discharges, if any*
CONNLEN		*NUMBER (6,2)*	*Length of outlet pipe from inlet in decimal feet*
CONNPIPETY		*CHAR (6)*	*Pipe material of outlet pipe from lookup table tbl049.dbf*
CONNSZ		*NUMBER (6,2)*	*Pipe diameter of outlet pipe in decimal inches*
UPSINV		*NUMBER (6,2)*	*Invert elevation of outlet pipe in decimal feet at inlet end*
DWNINV		*NUMBER (6,2)*	*Invert elevation of outlet pipe in decimal feet at downstream end*
DWNCONN		*CHAR (4)*	*Type of connection between the main or channel and the inlet from lookup table tbl085.dbf*
DWNDIS		*NUMBER (6,2)*	*Distance between outlet connection to main or channel and upstream or downstream structure of main or channel*
DWNFR		*CHAR (2)*	*U or O indication if distance measured is from upstream or downstream structure*
SPECINST		CHAR (254)	Other comments about the inlet
SERVSTAT		CHAR (1)	Use I for in service and O for out of service

Storm Node – Graphical Layer Name "Stormstr"

Compstnd.dbf

Field Name	Required	Field Type	Description
NODEID	Yes	CHAR (16)	ID of the node
STNO		*CHAR (6)*	Node *address street number*
PREDIR		*CHAR (3)*	*E,N,S,W if included in address*
STNAME		*CHAR (20)*	Node *address street name*
CITY		*CHAR (20)*	Node *address city*
STATE		*CHAR (2)*	Node *address state*
ZIP		*CHAR (10)*	Node *address zipcode*
ADDRQUAL		*CHAR (254)*	*Additional location information*
AREA	*YES*	*CHAR (10)*	*First two characters of the* node *id*
SUBAREA		*CHAR (3)*	*First three characters of Township in which the* node *is located*
LOC		*CHAR (4)*	Node *location from lookup table tbl030.dbf*
MAPNO		*CHAR (14)*	*DPW 2 foot contour reference map number*
NODETYPE		*CHAR (6)*	*Type of node from lookup table tbl084.dbf*
INSTDATE		DATE	Installation date
ASBLT		CHAR (10)	As-built number
SPECINST		CHAR (254)	Other comments about the node
SERVSTAT		CHAR (1)	Use I for in service and O for out of service

Sanitary Sewer Mains – Graphical Layer Name "Sansewer"

Compsmn.dbf

Field Name	Required	Field Type	Description
MAINCOMP1	YES	CHAR (4)	Type of structure at upstream end of main from lookup table **comptype.dbf**
UNITID	YES	CHAR (16)	ID of upstream structure
MAINCOMP2	YES	CHAR (4)	Type of downstream structure from lookup table **comptype.dbf**
UNITID2	YES	CHAR (16)	ID of downstream structure
PARLINENO		CHAR (1)	Used to distinguish between parallel pipes with the same upstream and downstream structures
STNO		*CHAR (6)*	*Upstream structure address street number*
PREDIR		*CHAR (3)*	*E,N,S,W if included in address*
STNAME		*CHAR (20)*	*Upstream structure address street name*
CITY		*CHAR (20)*	*Upstream structure address city*
STATE		*CHAR (2)*	*Upstream structure address state*
ZIP		*CHAR (10)*	*Upstream structure address zipcode*
ADDRQUAL		*CHAR (254)*	*Additional location information*
AREA	*YES*	*CHAR (10)*	*First two characters of the upstream structure id*
SUBAREA		*CHAR (3)*	*First three characters of Township in which the main is located*
LOC		*CHAR (4)*	*Main location from lookup table tbl030.dbf*

MAPNO		*CHAR (14)*	*DPW 2 foot contour reference map number*
MAINTYPE		CHAR (6)	Type of main from lookup table **tbl123.dbf**
PIPESHP		CHAR (4)	Shape of main from lookup table **tbl048.dbf**
PIPEDIAM	YES	NUMBER (6,2)	Diameter of pipe in decimal inches
PIPEHT		NUMBER (6,2)	Height of non-round pipe in decimal inches
PIPELEN	YES	NUMBER (7,2)	Length of pipe in decimal feet
PIPETYPE	YES	CHAR (6)	Pipe material from lookup table **tbl049.dbf**
JTTYPE		*CHAR (6)*	*Type of joint from lookup table* **tbl082.dbf**
JTLEN		*NUMBER (6,2)*	*Length of pipe sections used*
DSGNFLOW		*NUMBER (8,2)*	*Design flow of pipe*
FFACTOR		*NUMBER (7,3)*	*Design friction factor of pipes*
SLP		*NUMBER (7,5)*	*Slope of pipe in percent*
UPSDPTH	YES	*NUMBER (6,2)*	*Depth of upstream structure in decimal feet*
DWNDPTH	YES	*NUMBER (6,2)*	*Depth of downstream structure in decimal feet*
UPSELEV	YES	*NUMBER (7,2)*	*Invert elevation of upstream structure in decimal feet*
DWNELEV	YES	*NUMBER (7,2)*	*Invert elevation of downstream structure in decimal feet*
INSTDATE	YES	DATE	Installation date
ASBLT		CHAR (10)	As-built number
SURF		***CHAR (4)***	***Predominant surface material over pipe***
CRIT		***CHAR (4)***	***Criticality rating of the main***
PCPIRNO		CHAR (10)	Project number of PC/PIR project if applicable
SPECINST		CHAR (254)	Other comments about the main
SERVSTAT		CHAR (1)	Use I for in service and O for out of service

Sanitary Sewer Manholes and Nodes

Sanitary Sewer Nodes are placed at the intersection of sewer pipes where there is no manhole. They are included in the SANSTR GIS layer but have a separate database file.

Sanitary Sewer Nodes – Graphical Layer Name "Sanstr"

Compsnd.dbf

Field Name	Required	Field Type	Description
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NODEID	YES	CHAR (16)	ID of the node
STNO		***CHAR (6)***	*Node **address street number***
PREDIR		***CHAR (3)***	***E,N,S,W if included in address***
STNAME		***CHAR (20)***	*Node **address street name***
CITY		***CHAR (20)***	*Node **address city***
STATE		***CHAR (2)***	*Node **address state***
ZIP		***CHAR (10)***	*Node **address zipcode***
ADDRQUAL		***CHAR (254)***	***Additional location information***
AREA	***YES***	***CHAR (10)***	***First two characters of the** node **id***
SUBAREA		***CHAR (3)***	***First three characters of Township in which the** node **is located***
LOC		***CHAR (4)***	*Node **location from lookup table tbl030.dbf***

Field Name	Required	Field Type	Description
MAPNO		*CHAR (14)*	*DPW 2 foot contour reference map number*
NODETYPE		CHAR (6)	Type of node from lookup table **tbl084.dbf**
INSTDATE	YES	DATE	Installation date
ASBLT		CHAR (10)	As-built number
SPECINST		CHAR (254)	Other comments about the node
SERVSTAT		CHAR (1)	Use I for in service and O for out of service

Sanitary Sewer Manholes – Graphical Layer Name "Sanstr"

Compsmh.dbf

Field Name	Required	Field Type	Description
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MHID	YES	CHAR (16)	ID of the manhole
STNO		*CHAR (6)*	*Manhole address street number*
PREDIR		*CHAR (3)*	*E,N,S,W if included in address*
STNAME		*CHAR (20)*	*Manhole address street name*
CITY		*CHAR (20)*	*Manhole address city*
STATE		*CHAR (2)*	*Manhole address state*
ZIP		*CHAR (10)*	*Manhole address zipcode*
ADDRQUAL		*CHAR (254)*	*Additional location information*
AREA	*YES*	*CHAR (10)*	*First two characters of the Manhole id*
SUBAREA		*CHAR (3)*	*First three characters of Township in which the manhole is located*
LOC		*CHAR (4)*	*manhole location from lookup table **tbl030.dbf***
MAPNO		*CHAR (14)*	*DPW 2 foot contour reference map number*
MHTYPE		CHAR (6)	Type of manhole from lookup table **tbl040.dbf**
MHDPTH	YES	NUMBER (7,2)	Depth of manhole in decimal feet
SURF		***CHAR (4)***	***Surface cover material around manhole from list of codes***
CVRDIAM	YES	NUMBER (6,2)	Cover diameter of manhole in decimal inches
CVRTYPE	YES	CHAR (4)	Manhole cover type from lookup table **tbl034.dbf**
BARLDIAM	YES	NUMBER (6,2)	Barrel diameter in decimal inches
FRAMETYPE	YES	CHAR (4)	Manhole casting material from lookup table **tbl035.dbf**
RINGSTYPE	YES	CHAR (4)	Riser ring material from lookup table **tbl038.dbf**
CONETYPE	YES	CHAR (4)	Cone material from lookup table **tbl038.dbf**
WALLTYPE	YES	CHAR (4)	Wall material from lookup table **tbl038.dbf**
BENCHTYPE	YES	CHAR (4)	Bench type from lookup table **tbl038.dbf**
CHNLTYPE	YES	CHAR (4)	Channel type from lookup table **tbl038.dbf**
BASETYPE	YES	CHAR (4)	Base material from lookup table **tbl038.dbf**
STEPSTYPE	YES	CHAR (4)	Type of steps from lookup table **tbl038.dbf**
HYDIST		*NUMBER (6,2)*	*Disdance to nearest hydrant in decimal feet*
METERED	YES	CHAR (1)	Y or N
DROPMH	YES	CHAR (1)	Y or N
INSTDATE	YES	DATE	Installation date

ASBLT		CHAR (10)	As-built number
PCPIRNO		CHAR (10)	Project number of PC/PIR project if applicable
SPECINST		CHAR (254)	Other comments about the manhole
SERVSTAT		CHAR (1)	Use I for in service and O for out of service

Sanitary Sewer Lift Stations – Graphical Layer Name "Liftstat"

Compsls.dbf

Field Name	Required	Field Type	Description
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LSID	YES	CHAR (16)	Lift station ID
LSNAME		*CHAR (30)*	*Lift station name*
STNO		*CHAR (6)*	*Lift station **address street number***
PREDIR		*CHAR (3)*	***E,N,S,W if included in address***
STNAME		*CHAR (20)*	*Lift station **address street name***
CITY		*CHAR (20)*	*Lift station **address city***
STATE		*CHAR (2)*	*Lift station **address state***
ZIP		*CHAR (10)*	*Lift station **address zipcode***
ADDRQUAL		*CHAR (254)*	***Additional location information***
AREA	YES	*CHAR (10)*	***Work area for lift station***
SUBAREA		*CHAR (3)*	***First three characters of Township in which the lift station is located***
LOC		*CHAR (4)*	*Lift station **location from lookup table tbl030.dbf***
MAPNO		*CHAR (14)*	***DPW 2 foot contour reference map number***
LSTYPE		*CHAR (6)*	***Lift station type***
SERNO		*CHAR (20)*	***Serial number of lift station***
MODELNO		*CHAR (20)*	***Model number of lift station***
WETWLVOL		*NUMBER (7,2)*	***Wet well volume in gallons***
WETWLELEV		*NUMBER (7,2)*	***Wet well elevation in decimal feet***
OVFLELEV		*NUMBER (7,2)*	***Wet well overflow elevation in decimal feet***
NOPUMPS		*NUMBER (5)*	***Number of pumps in the lift station***
PUMPCAP		*NUMBER (9,1)*	***Pump capacity of station in GPM of MGD***
PUDISSIZE		*NUMBER (7,2)*	***Size of the forcemain in decimal inches***
INSTDATE		*DATE*	***Installation date***
ASBLT		CHAR (10)	As-built number
PCPIRNO		CHAR (10)	Project number of PC/PIR project
TDH		*NUMBER (9)*	***TDH of pumps in feet***
SPECINST		CHAR (254)	Other comments about the lift station
SERVSTAT		CHAR (1)	Use I for in service and O for out of service

Easement Lines – Graphical Layer Name "Dpwesmt"

Easement.dbf

Field Name	Required	Type	Description
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EASEMENTID	YES	CHAR (16)	ID of the EASEMENT
NAME		CHAR (4)	Easement Type
ASBLT		CHAR (10)	As-built number
SPECINST		CHAR (254)	Other comments about the Easement

Traffic Signal Poles – Graphical Layer Name "Sigpole"

Sigpole.dbf

Field Name	Required	Field Type	Description
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DCAM#	YES	CHAR(6)	DCAM Intersection Number (leading zeros required)
Pole Number#	YES	CHAR(16)	Identifying Number
SHAPE		CHAR(6)	Pole Shape
MATERIAL		CHAR(6)	Pole Material
FUNCTION		CHAR(6)	Pole Function
ARM_TYPE		CHAR(6)	Arm Type
ARM_LENGTH		Number(6,2)	Arm Length to nearest foot
HEIGHT		Number(6,2)	Pole Height to nearest tenth of foot
FND_TYPE		CHAR(6)	Foundation Type
SPAN#		Number(2)	Number of Span Cables Attached to Pole
TETH#		Number(2)	Number of Tether Cables Attached to Pole
CAT#		Number(2)	Number of Catenary Cables Attached to Pole
DATE_INSTALLED		DATE	Date Installed MO/DA/YR
IMAGIS X Coord		Number(8,2)	
IMAGIS Y Coord		Number(8,2)	

Traffic Signal Heads – Graphical Layer Name "Sighead"

Sighead.dbf

Field Name	Required	Field Type	Description
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DCAM_NO	YES	CHAR (6)	DCAM Intersection Number (leading zeros required)
HEAD_NO	YES	CHAR (16)	HEAD Number
POLE_1		CHAR (16)	Identifying Number for First Attached Pole
POLE_2		CHAR (16)	Identifying Number for Second Attached Pole
HEAD_CD		CHAR(15)	Head Code
MOUNT_TYPE		CHAR(6)	Mounting Type
MOUNT_HGHT		Number(6,2)	Mounting Height from Pavement to hundredth Foot

Field Name	Field Type	Description
TRAF_DIR	CHAR(1)	Traffic Direction (N, S, E, W)
HEAD_ALGN	CHAR(1)	Head Alignment (H – horizontal or V - vertical)
STROBE	CHAR(1)	Strobe Light Present – Y (Yes) or N (No)
DATE_INST	DATE	Date Installed MO/DA/YR
IMAGIS_X	Number(8,2)	
IMAGIS_Y	Number(8,2)	

Traffic Signal Access Holes – Graphical Layer Name "Sighole"

Sighole.dbf

Field Name	Required	Field Type	Description
DCAM_NO	YES	CHAR(6)	DCAM Intersection Number (leading zeros required)
HOLE_NO	YES	CHAR(16)	Identifying Number – Unique for file
TYPE		CHAR(4)	Hole Type
DATE_INST		Date	Date Installed MO/DA/YR
IMAGIS_X		Number(8,2)	
IMAGIS_Y		Number(8,2)	

Traffic Signal Cabinets – Graphical Layer Name "Sigcocab"

Sigcocab.dbf

Field Name	Required	Field Type	Description
DCAM_NO	YES	CHAR(6)	DCAM Intersection Number (leading zeros required)
CAB_NO	YES	CHAR(5)	Identifying Number
MOUNT_TYPE		CHAR(6)	Mounting Type
FND_TYPE		CHAR(6)	Foundation Type
MON_TYPE		CHAR(16)	Conflict Monitor Type
TBC_TYPE		CHAR(16)	TBC Type
WIRE		CHAR(1)	Telephone Wire Present – Y (Yes) or N (No)
MODEM_TYPE		CHAR(16)	Modem Type
CLOCK		CHAR(1)	External Clock Present – Y (Yes) or N (No)
AMP		CHAR(1)	Amplifier Present – Y (Yes) or N (No)
SWITCH_NO		NUMBER(2)	Number of Load Switches Present
DIAL_NO		NUMBER(2)	Number of Dials Present
INTERCONN		CHAR(1)	Is cabinet interconnected – Y (Yes) or N (No)
L_CNT_TYPE		Number(2)	Local Controller Type
L_CONT_NO		CHAR(15)	Local Controller Serial Number
M_CNT_TYPE		Number(2)	Master Controller Type
M_CONT_NO		CHAR(15)	Master Controller Serial Number
F_SIZE		CHAR(6)	Filter Size 3 dimensions
DATE_INST		DATE	Date Installed MO/DA/YR

- Revisions 7/6/98: Changed the names of storm and sanitary tables due to an upgrade of Hansen IMS. Changed attribute table format from xls to dbf to keep field structures.
- Revisions 3/15/99: Added in labeling requirements for the data exchange media. Added in table information for sewer layers. Identified fields that must be populated with data.
- Revisions 3/29/99: Added in required graphic specification for line input direction on page 2 within the first bullet.
- Revisions 8/10/99: Added in missing table information for sewer layers that was left off from earlier revision to match the .dbfs. Changed the UNITID names where appropriate to match the .dbf headings.
- Revisions 3/14/00: Changed all SUBAREA Field Types to read CHAR(3) instead of CHAR(4) and added appropriate wording to the description field. Changed the lookup table 038.dbf to 035.dbf in the description for FRAMETYPE on Storm and Sanitary Manhole sections.
- Revisions 6/16/00: Added in new sub-bullet under 'Required graphic specifications …' bullet on page 2 describing how line segments should be input so that each node/structure constitutes an end of that line segment.
- Revisions 8/16/00: Removed SEGID Field from the Compstmn.dbf, the Compstch.dbf and the Compsmn.dbf tables. These descriptions did not match the actual tables and therefore are not needed. Added the IMS lookup table tbl084 to the NODETYPE field description for the Storm Node (Compstnd.dbf) section.
- Revisions 12/22/00: Added missing lookup table tbl085.dbf for DWNCONN field under the Storm Inlet (Compstin.dbf) section to the IMS Lookup Tables and amended the description field accordingly on page 10.